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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KIM, TAEYOON

ART UNIT

PAPER NUMBER

1651

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/581,157	SAILER, MICHAEL FRITZ	
	Examiner	Art Unit	
	Taeyoon Kim	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-21 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/18/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group II (claims 9-21) in the reply filed on 4/24/2009 is acknowledged. The traversal is on the ground(s) that the cited reference, McDaniel does not teach a water insoluble coating and a coating comprising microorganisms. This is not found persuasive because McDaniel teaches numerous examples of water insoluble coating or painting including water repellent coating (par. 46) as well as solvent borne coating (par. 51). With regard to the microorganisms, McDaniel teaches the coating or paint comprising a biomolecule including living cells (par. 117). Furthermore, the technical feature of water insoluble coating and microorganism layer reads on a mildew or fungus film/layer formed on an oil-based paint (water insoluble)-coated outdoor furniture such as bench, fences, deck, etc. Still further, Selvig et al. (US 5,919,689; see below) teach a marine surface coated with a paint comprising microorganism (see abstract). Therefore, the shared technical feature of water insoluble coating or paint with a microorganism layer cannot be considered as "special technical feature".

Group III invention (claims 8 and 23) is rejoined to Group II invention.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-7 are withdrawn from consideration as being drawn to non-elected subject matter, claim 22 has been cancelled, and claims 8-21 and 23 have been considered on the merits.

Claim Objections

Claim 8 is objected to because of the following informalities: Claim 8 is dependent on non-elected claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the water insoluble layer" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 discloses that the water-insoluble substance of the composition of claim 13 comprising C4 to C32 saturated or unsaturated fatty acid esters. It is not clear whether the water-insoluble substance of claim 14 intends to comprise one of combination disclosed in claim 13 and additionally comprise C4 to C32 fatty acid esters, or C4 to C32 fatty acid esters being a sole water insoluble substance. Clarification is required. It is reminded that the specification does not disclose the combination of oil, wax and fatty acid esters.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 9 and 11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The current claims can read on a tree trunk covered with bark (water insoluble substance) and a layer of microorganism (fungi) on top of the bark, which is a product of nature rather than a man-made product. Therefore, the claims are drawn to non-statutory subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by a bench, a fence, a deck or any other outdoor wooden furniture or object coated with sealant or oil-based paint (water insoluble substance), and covered with mildew and/or mold (microorganism).

The coating of sealant or paint would inherent impregnate the wooden materials.

Thus, the indicated objects anticipate the claimed subject matter.

Art Unit: 1651

Claims 8-11, 15, 16, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Selvig et al. (US 5,919,689).

Selvig et al. teach a marine surface (wood blades; col. 17, lines 6-13) coated with paints containing microorganism such as bacteria and/or fungi (abstract; col. 6, lines 18-27).

The coating of Selvig et al. includes paints, lacquers, pastes, laminates, epoxies, resins, waxes, etc. (col. 6, lines 28-35), and these materials are inherently water insoluble, and thus meets the limitation.

With regard to the growth substrate layer (claims 15 and 16), the presence of living microorganisms in the coatings of Selvig et al. meets the limitation because it is an inherent property of the microorganisms to exude carbohydrates and/or proteins which are used for microorganisms to attach and used as a constantly renewed supply of organic nutrients that are conducive to growth according to Selvig et al. (col. 1, lines 40-57). Thus, the microorganism containing coating of Selvig et al. inherently possesses the growth substrate such as carbohydrates and/or proteins.

Thus, the reference anticipates the claimed subject matter.

Claims 8-13, 18, 20 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by McDaniel (US 2004/0109853; of record).

McDaniel teaches various coatings and paints comprising biomolecule composition derived from microorganism including living microorganisms (Abstract; par. 117).

Art Unit: 1651

It is an inherent property of coating or paints applied to porous surface such as wood would impregnate into the pores of the surface, and thus meets the limitation of claim 10.

McDaniel teaches the coating and/or film thickness upon a surface being in a range of 1 μm to 2000 μm (par. 878; Example 12).

McDaniel teaches that the water insoluble coating can be deformed including mineral oil, fatty acid ester, wax, pine oil or a combination thereof (par. 746).

McDaniel also teaches that the examples of contemplated microorganisms include a bacterium, a fungus or a combination thereof (par. 256).

McDaniel teaches an architectural coating suitable to coat surface materials commonly found as part of buildings such as a plaster surface, a wood surface, a metal surface, a masonry surface, etc. (par. 329).

Thus, the reference anticipates the claimed subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 1651

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 8-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel (supra) in view of Selvig et al. (supra) in further view of Blanchette et al. (US 5,538,752).

McDaniel teaches the limitations of Claims 8-13, 18, 20 and 21 and thus, render them obvious (see above).

Even if McDaniel's teaching is considered not to contain living microorganism, it would have been obvious to a person of ordinary skill in the art to use living microorganism to protect a surface material from the growth of unwanted microorganisms as Selvig et al. teach the use of innocuous microorganism in the coating to out-compete unwanted organisms from the environment (col. 4, line 63 – col. 5, line 2). Therefore, it would have been obvious to a person of ordinary skill in the art to use living microorganism in the coating of McDaniel.

Although McDaniel teaches the use of fatty acid ester, the reference does not teach the fatty acid ester being C4 to C32 saturated or unsaturated form (claim 14). However, it would have been obvious to a person of ordinary skill in the art to try claimed fatty acid ester since it is considered as a well known option with a predictable outcome within his or her technical grasp for the paint and/or coating of McDaniel.

The Supreme Court recently states in KSR v. Teleflex (550 US82 USPQ2d 1385, 2007) "The same constricted analysis led the Court of Appeals to conclude, in error, that

Art Unit: 1651

a patent claim cannot be proved obvious merely by showing that the combination of elements was “obvious to try.” *Id.*, at 289 (internal quotation marks omitted). When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under §103.” See also M.P.E.P. §2141.

With regard to the growth substrate layer comprising carbohydrates and/or proteins (claims 15 and 16), McDaniel does not teach that the coating or paint comprising microorganism comprises a growth substrate layer in the microorganism layer, and the growth substrate comprises carbohydrates and/or proteins.

However, it is well known in the art that carbohydrates and/or proteins exuded from the microorganisms and by these extracellular carbohydrates and/or proteins are used for microorganisms to attach and as a constantly renewed supply of organic nutrients that are conducive to growth according to Selvig et al. (col. 1, lines 40-57). Therefore, it would have been obvious to a person of ordinary skill in the art to use carbohydrates and/or proteins in the microorganism layers to have the microorganisms for the coatings and/or paints to adhere and grow utilizing carbohydrates and/or proteins.

Furthermore, the presence of living microorganisms in McDaniel's paints and/or coatings meet the limitation because it is inherent property of the microorganisms to exude carbohydrates and/or proteins according to Selvig et al. (col. 1, lines 40-57). With regard to the limitation drawn to the thickness of microorganism layer being less than about 1000 μm (claim 17), it would have been obvious to a person of ordinary skill in the art to routinely optimize the thickness of microorganism layers since it is considered that a person of ordinary skill in the art would recognize that the thickness of microorganism layer is a result-effective variable.

It is well settled that routine optimization is not patentable, even if it results in significant improvements over the prior art. In support of this position, attention is directed to the decision in *In re Aller*, Lacey, and Haft, 105 USPQ 233 (CCPA 1955): Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. *In re Dreyfus*, 22 C.C.P.A. (Patents) 830, 73 F.2d 931, 24 USPQ 52; *In re Waite et al.*, 35 C.C.P.A. (Patents) 1117, 168 F.2d 104, 77 USPQ 586. Such ranges are termed "critical" ranges, and the applicant has the burden of proving such criticality. *In re Swenson et al.*, 30 C.C.P.A. (Patents) 809, 132 F.2d 1020, 56 USPQ 372; *In re Scherl*, 33 C.C.P.A. (Patents) 1193, 156 F.2d 72, 70 USPQ 204. However, even though applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the

Art Unit: 1651

capabilities of one skilled in the art. *In re Sola*, 22 C.C.P.A. (Patents) 1313, 77 F.2d 627, 25 USPQ 433; *In re Normann et al.*, 32 C.C.P.A. (Patents) 1248, 150 F.2d 708, 66 USPQ 308; *In re Irmischer*, 32 C.C.P.A. (Patents) 1259, 150 F.2d 705, 66 USPQ 314. More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 C.C.P.A. (Patents) 1250, 156 F.2d 239, 70 USPQ 412; *Minnesota Mining and Mfg. Co. v. Coe*, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; *Allen et al. v. Coe*, 77 App. D. C. 324, 135 F.2d 11,57 USPQ 136. (Emphasis added). With regards to determining experimental parameters, such as time in culture, the court has held that "[d]iscovery of optimum value of result effective variable in known process is ordinarily within skill of art (*In re Boesch and Slaney*, 205 USPQ 215 (CCPA 1980)).

The adjustment of particular conventional working conditions (e.g., thickness of microorganism layer) is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan having the cited reference before him/her.

With regard to the limitation of the microorganism being *Aureobasidium* spp. (claim 19), McDaniel in view of Selvig et al. do not teach the limitation.

It would therefore have been obvious for the person of ordinary skill in the art at the time the invention was made to use *Aureobasidium* spp. as microorganisms in the coating of McDaniel in view of Selvig et al.

The skilled artisan would have been motivated to make such a modification because McDaniel teaches a coating for the protection of a wood surface from UV light

Art Unit: 1651

irradiation damages by utilizing a UV protective agent such as a pigment that absorbs UV light (par. 336). Since Blanchette et al. teach the use of melanin is a pigment to absorb UV light and protect wooden material from UV irradiation (abstract) and melanin is synthesized by *Aureobasidium* strain (col. 3, lines 1-12), a person of ordinary skill in the art would recognize that *Aureobasidium* spp. can be utilized as a microorganism to be added to the coating of McDaniel to provide melanin to absorb UV lights and thus providing a protection to a wood surface from UV irradiation damage.

With regard to the limitation of claim 23 drawn to garden furniture, fence, façade element or cladding comprising the water insoluble substance and a microorganism layer, it would have been obvious to a person of ordinary skill in the art to try the coating of McDaniel in view of Selvig et al. for garden furniture, fence, façade element or cladding since the coating comprising microorganism of McDaniel in view of Selvig et al. is suitable for architectural materials (par. 329 of McDaniel).

Therefore, the invention as a whole would have been prima facie obvious to a person of ordinary skill at the time the invention was made.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taeyoon Kim whose telephone number is (571)272-9041. The examiner can normally be reached on 8:00 am - 4:00 pm ET (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 1651

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/Taeyoon Kim/
Examiner, Art Unit 1651